

BUILD A FLOWERING PLANT MODEL

Objectives:

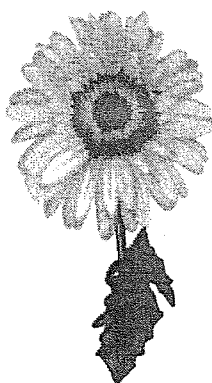
- You will be able to identify the parts of a flowering plant.
- You will be able to explain the functions of each part of a flowering plant.
- You will be able to build a model of a flowering plant.

Introduction:

In the following lab, you will learn about the parts of a flowering plant and what their functions are. You will also build your own model of a flowering plant using the materials your teacher provides. Your model will contain most of the important parts that you will learn about.

Procedure:

1. Use a text book to complete Table 1 on page S2.
2. Use a text book to complete the "Parts of a Flowering Plant" diagram on page S3.
3. Follow the instructions on pages S4 through S7 to complete your model.
 - a. Page S8 is separate and is the template you will use to cut out several of your plant parts.
4. Use a text book to complete the questions on pages S9 thorough S11.



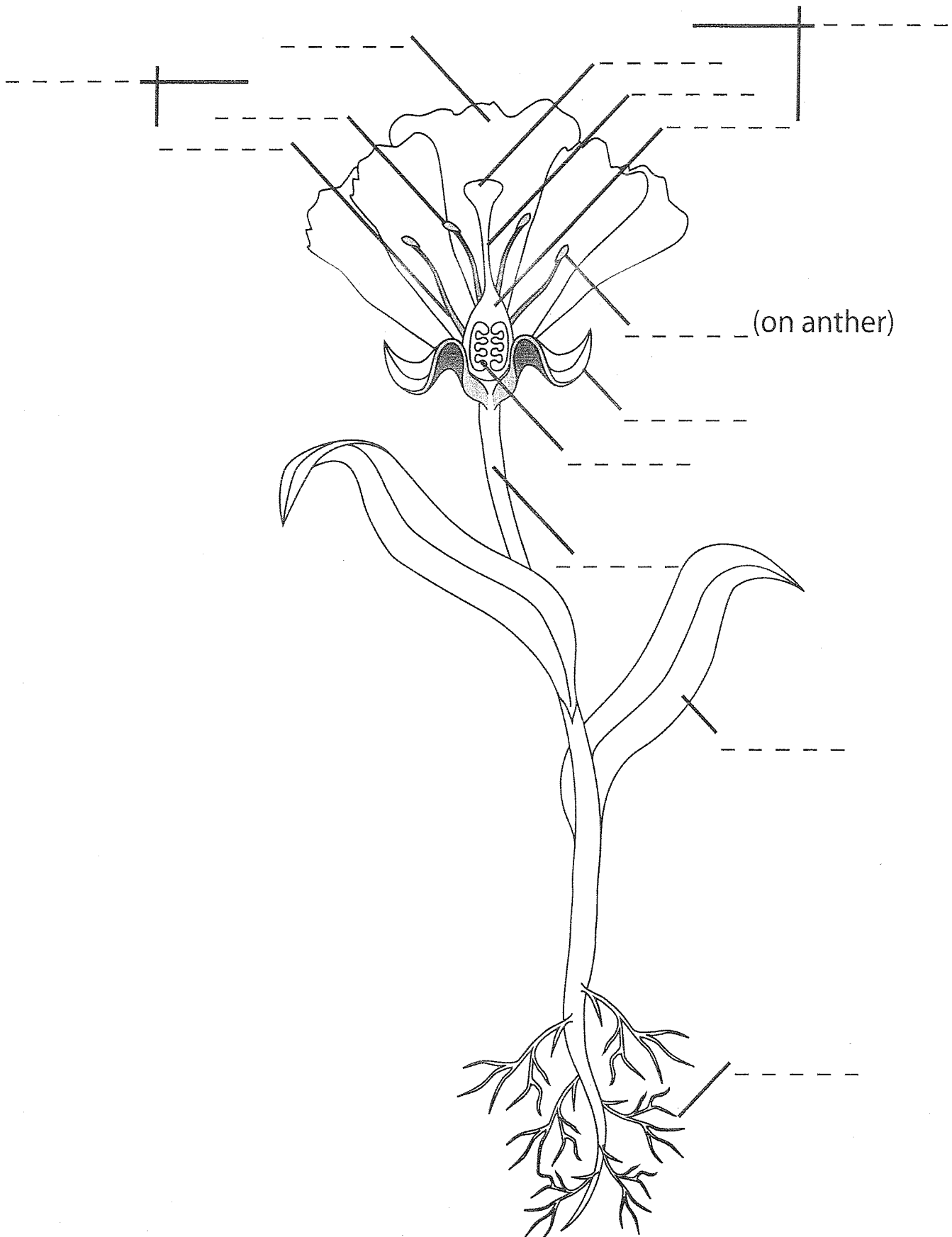
Write the function of each plant part listed. Include what the part's job is and why it is important to the plant.

Table 1: Parts of the plant and their functions.

Part	Function
Roots	
Stem	
Leaves	
Sepals	
Petals	
Pistil	
Ovary	
Stigma	
Style	
Ovules	
Stamen	
Filament	
Anther	
Pollen	

Parts of a Flowering Plant

Label the parts of a flowering plant. Each solid line points to a plant part. Write the name of the parts on the dotted lines.



ACTIVITY 3: BUILD A MODEL OF A FLOWERING PLANT

Materials:

You will need:

- 1 straw
- 3 toothpicks
- 2 pea-sized balls of green clay
- 1 rectangle of green tissue paper (8" x 4")
- 1 rectangle of colored tissue paper (8" x 4")
- 4 pieces of brown yarn, 4" each
- 1 glue stick
- 1 pinch of yellow sand
- 1 cotton swab
- 1 pair of scissors
- 1 pencil

Procedure:

1. Take three toothpicks and dip one end of each into glue and then into yellow sand. Set these aside to let the glue dry. You will use them later.
2. Find the template on page S8. Cut out the pattern for each item on page S8.
3. Find the rectangle of **green** tissue paper. Place the patterns for the stem cover, leaf, and sepals on the tissue paper, as shown in **Figure 1**, below. Use a pencil to trace the patterns on the tissue paper. Be careful not to press too hard because the paper may rip. At the end of this step you should have traced two leaves, three sepals, and one stem cover.

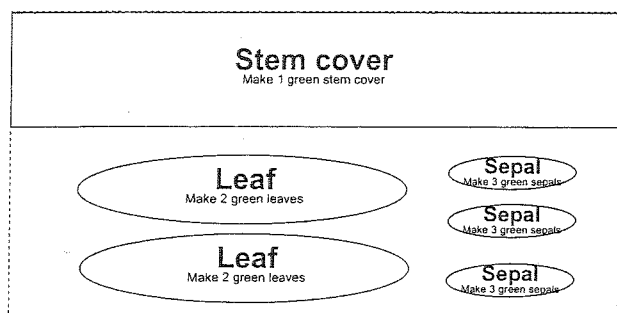


Figure 1:
Patterns on green tissue paper

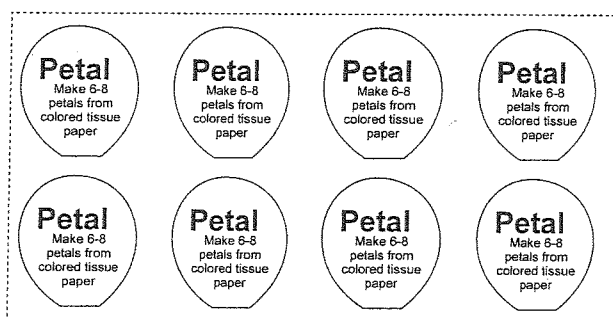


Figure 2:
Patterns on colored tissue paper

4. Find the rectangle of **colored** tissue paper. Place the pattern for the petals on the tissue paper, as shown in **Figure 2**, above. Use a pencil to trace the pattern six to eight times on the tissue paper. Be careful not to press too hard because the paper may rip. At the end of this step you should have traced six to eight petals.
5. Cut out all of the shapes you traced on the green and colored tissue paper.

6. Take the cotton swab and wrap one pea-size piece of clay around the center of the stick part of the swab (see **Figure 3**). Place one end of the swab in the straw so that half of the swab is sticking out of the top end of the straw (see **Figure 4**). The clay should hold the swab in place. The swab represents the pistil. The cotton at the top of the swab represents the stigma and the cotton at the bottom of the swab (that is, the cotton inside the straw) represents the ovary. The middle (stick) part of the cotton swab represents the style.

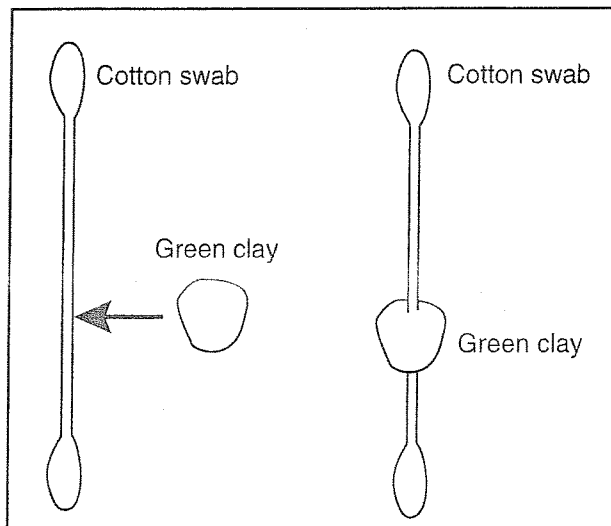


Figure 3

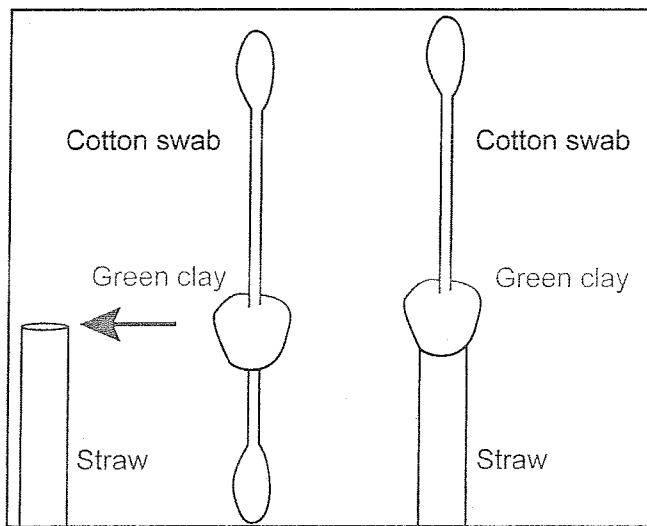


Figure 4

7. Find the three toothpicks you prepared at the beginning of this activity. Insert the toothpicks, with the yellow end facing up, into the clay around the pistil (the top of the cotton swab). (See **Figure 5**). The bottom of the toothpicks should be in the straw with the cotton swab. Make sure that the top of the toothpicks are below the top of the cotton swab. The toothpicks represent the stamen and the yellow sand represents the pollen.

Note: If you are having trouble fitting three toothpicks into the straw you may have too much clay in the straw. Try removing some of the clay OR just use two toothpicks. Do NOT try to force the toothpicks into the straw.

8. Using the glue stick, glue the petals (colored tissue paper) evenly spaced around the top of the stem. You should only need to put glue on the bottom half of one side of the petals (see **Figure 6**).

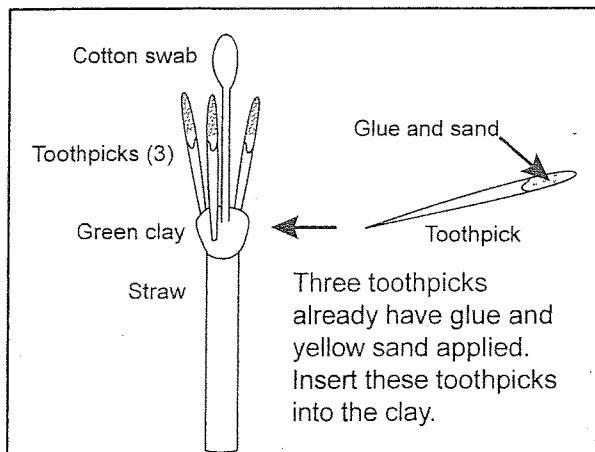


Figure 5

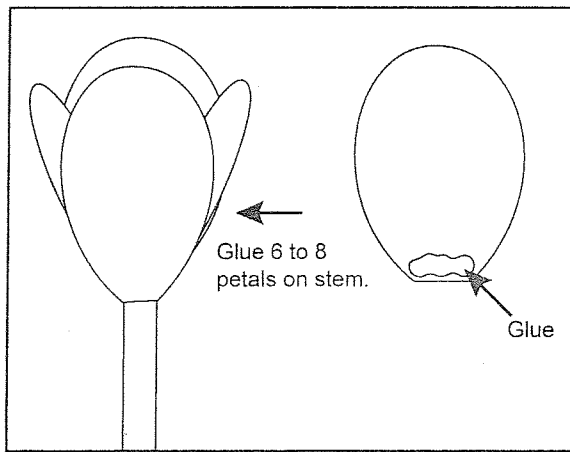


Figure 6

9. Take the three sepals (small ovals) you cut from the green tissue paper, and glue them evenly spaced around the bottom of the petals. You should only need to put glue on the bottom of the sepals (see **Figure 7**).

10. Find the stem cover (rectangle) you cut from the green tissue paper. Put a strip of glue along one long edge of the rectangle and glue it to the stem. (See **Figure 8**.) Roll the stem so that it is tightly wrapped in the green tissue, and then put another strip of glue on the other long edge of the green tissue. This will glue the paper onto the wrapped stem.

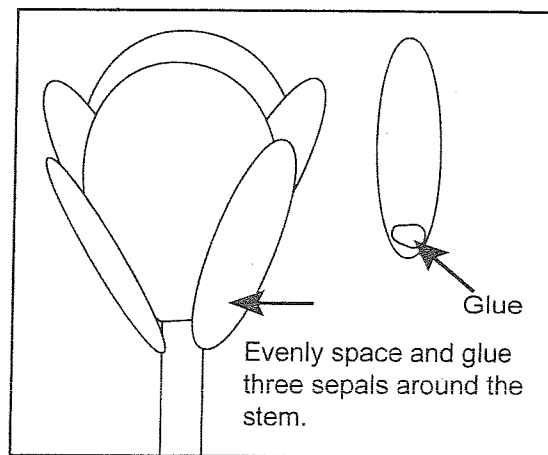


Figure 7

11. Find the two leaves (large ovals) you cut from the green tissue paper. Using a glue stick, attach these leaves to the stem. You should only put glue on the bottom of one side of the leaves (see **Figure 9**).

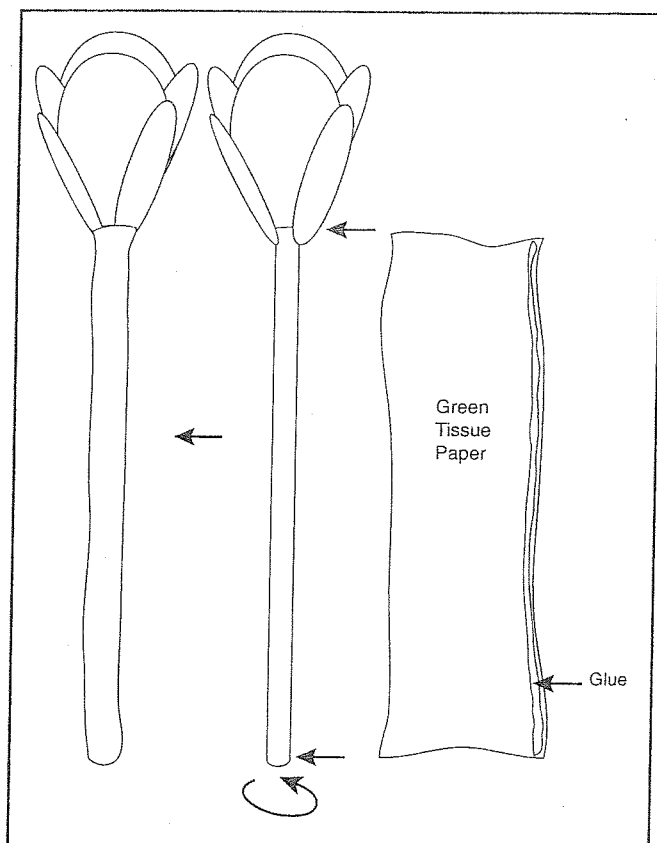


Figure 8

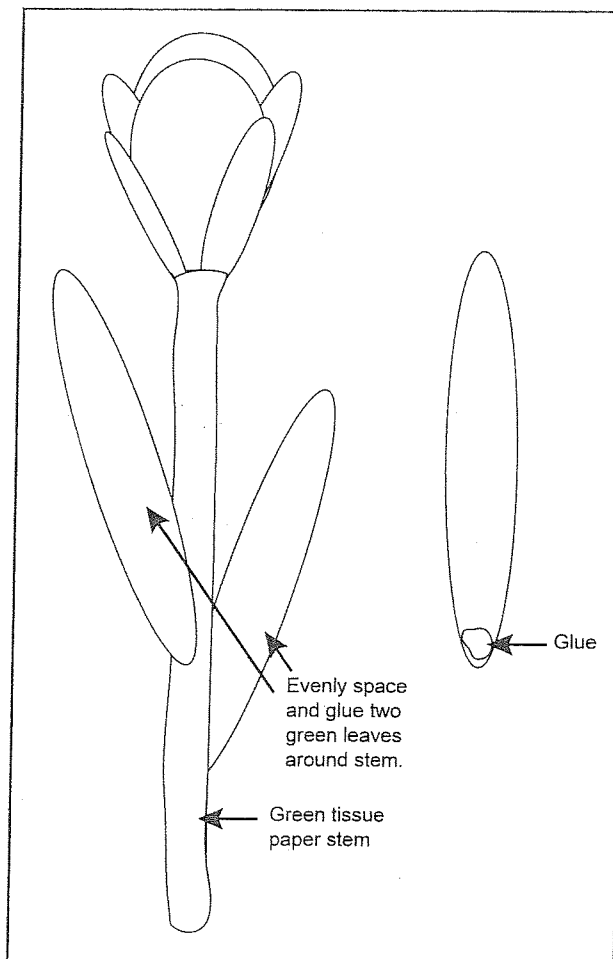


Figure 9

12. Take four pieces of yarn and insert one end of each piece into the second ball of clay. Press the clay into the bottom end of the straw so that the yarn is hanging out (see **Figure 10**).

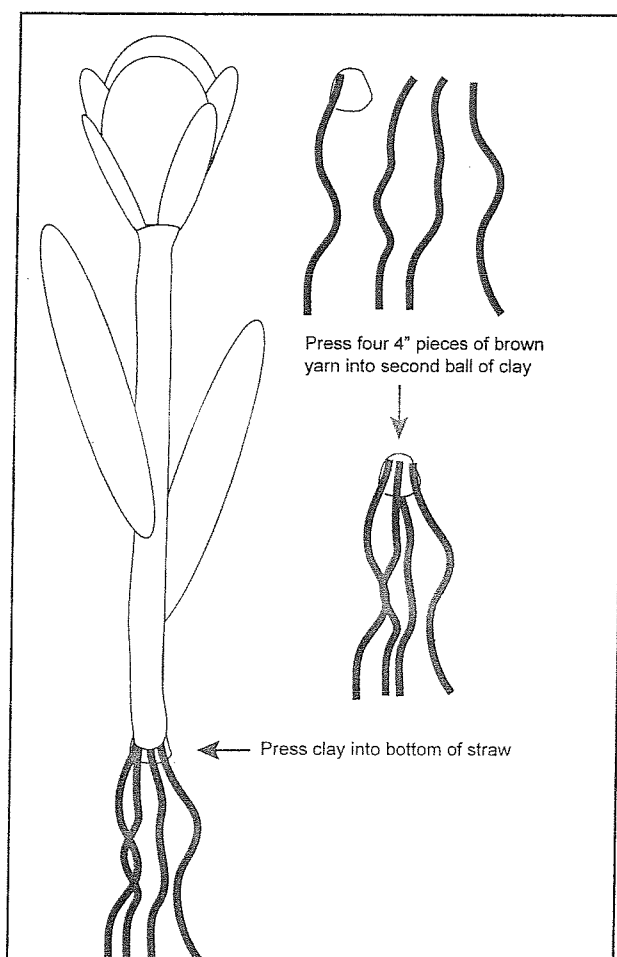


Figure 10

YOU HAVE NOW COMPLETED YOUR MODEL OF A BEAUTIFUL FLOWERING PLANT!

ACTIVITY 4: STUDENT ASSESSMENT

Part A. Fill in the blanks with the correct word or words.

1. The female part of the flower that consists of the ovary, style, and stigma is called the _____.
2. The male part of the flower that produces pollen is called the _____.
3. Pollen can be transported by _____, _____, and _____.
4. The roots of a plant help transport _____ and _____ from the soil.

Part B. Match the part of the plant (in the column on the left) with the part's function (in the column on the right). There is only one correct match for each term. Write your answer (a letter from the column on the right) in the space next to the number.

- | | |
|-------------------|---|
| 5. _____ stamen | a. brightly colored to attract animals |
| 6. _____ filament | b. produces the seeds |
| 7. _____ roots | c. collects the pollen |
| 8. _____ style | d. produces the pollen |
| 9. _____ pollen | e. carries water and nutrients from the roots to the plant body |
| 10. _____ ovary | f. protect the forming flower |
| 11. _____ pistil | g. connects the stigma and the ovary |
| 12. _____ ovules | h. holds the anther up |
| 13. _____ leaves | i. male reproductive part of the flower |
| 14. _____ stigma | j. produces food for the plant |
| 15. _____ anther | k. female sex cells |
| 16. _____ sepals | l. take in water and nutrients from the soil |
| 17. _____ petals | m. male sex cells |
| 18. _____ stem | n. female reproductive part of the flower |

Part C. Answer the following questions using complete sentences.

19. Why did you use a straw to represent the stem of the plants? Think about the stem's function and why you would normally use a straw.

20. Define pollination and list a reason why it is important.

21. Explain how brightly colored petals help in the process of pollination.

22. State one way the ovary and the stigma are similar.

23. State one way the ovary and the stigma are different.

24. Give two reasons why angiosperms are important to humans and animals.
